

DAPHabitat System

www.daphabitat.pt

ENVIRONMENTAL PRODUCT DECLARATION

[according to ISO 14025, EN 15804:2012+A1:2013 and EN 15942]



DECLARATION NUMBER: DAP 004:2022



WEBERTHERM KAL

ISSUE DATE: 21/07/2022

VALID UNTIL: 20/07/2027

SAINT-GOBAIN PORTUGAL, S.A.



VERSION 1.1. EDITION JULY 2015


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1. GENERAL INFORMATION

1.1. The DAPHabitat System

Program operator:	Sustainable Construction Platform www.centrohabitat.net centrohabitat@centrohabitat.net	 Plataforma para a Construção Sustentável
Address:	Departamento Engenharia Civil Universidade de Aveiro 3810-193 Aveiro	
Email address:	deptecnico@centrohabitat.net	
Telephone number:	(+351) 234 401576	
Website:	www.daphabitat.pt	
Logo:		

1.2. EPD OWNER

Name of the owner:	Saint-Gobain Portugal, S.A.	
Production site:	Centro Aveiro: Rua da Carreira Branca, Zona Industrial de Taboeira - 3800-055 Aveiro Centro Carregado: Quinta dos Cónegos, 2580-465 Carregado	
Address (head office):	Rua da Carreira Branca, Zona Industrial de Taboeira - 3800-055 Aveiro (Portugal)	
Telephone:	Geral: (+351) 234 10 10 10 Sara Lacerda: (+351) 961710536	
E-mail:	info.portugal@saint-gobain.com sara.lacerda@saint-gobain.com	
Website:	http://weber.saint-gobain.pt/	
Logo:	 	
Information concerning the applicable management Systems	  <p>ISO 9001 - Quality management systems ISO 14001 - Environment management systems ISO 45001 - Occupational health and safety management system</p> <p>TOP EMPLOYER Human Resource Management Best Practices</p>	
Specific aspects regarding the production:	Main NACE/CAE: 23640-R3 Secondary NACE/CAE: (1) 23992-R3 (2): 23620-R3	

Organization's environmental policy:

We care about people and their environment

At Weber, we believe that what matters most in the construction industry is to care about people and their environment. Weber develops, produces and sells solutions based on industrial mortars and construction chemicals for building construction and renovation. Weber is made up of 10,000 people in 64 countries supported by almost 200 production units. Weber's services and solutions aim to help customers save time, feel confident and comfortable, be successful in their work and grow their business.

Our brand promises:

- **Well-being:** We care for the safety and benefit of all. Making lives easier, more convenient and more comfortable.
- **Empathy:** We care about people. Listening to what matters to people and taking into account their needs. Helping everyone to grow. Responding to the multiplicity of challenges in today's world, and adapting to the diversity of the lives that populate it.
- **Long-lasting:** We care about today. But also for the future. Taking responsibility to lead the change and build a tomorrow that is in harmony with its environment.

Weber, a Saint-Gobain brand

Saint-Gobain designs, manufactures and distributes materials and solutions for the construction, mobility, healthcare and other industrial application markets. Developed through a continuous innovation process, they can be found everywhere in our living places and daily life, providing wellbeing, performance and safety, while addressing the challenges of sustainable construction, resource efficiency and the fight against climate change.

This strategy of responsible growth is guided by the Saint-Gobain purpose, "MAKING THE WORLD A BETTER HOME", which responds to the shared ambition of all the women and men in the Group to act every day to make the world a more beautiful and sustainable place to live in.

Saint-Gobain Portugal, S.A. represents three brands



Solutions in mineral wool for thermal and acoustic insulation and fire protection solutions.



Products and solutions in plaster for new buildings or rehabilitation.





Reference in mortars for different application in construction.

1.3. Information concerning the EPD

Authors:	Saint-Gobain Portugal, S.A. S+A Green Lab, S.A.
Contact of the authors:	Saint-Gobain Portugal, S.A. S+A Green Lab, S.A. sara.lacerda@saint-gobain.com mmatos@greenlab.com.pt vmarinho@greenlab.com.pt
Issue date:	21/07/2022
Registration date:	22/09/2022
Registration number:	DAP 004:2022
Valid until:	20/07/2027
Representativity of the EPD (location, manufacturer, group of manufacturers):	EPD of one (1) product, produced in two (2) plants, belonging to a single (1) producer (Saint-Gobain Portugal, S.A.).
Where to consult explanatory material:	https://construir.saint-gobain.pt/
Type of EPD:	EPD from cradle to gate (A1-A3)

1.4. Demonstration of the verification

External independent verification, accordingly with the standard ISO 14025:2009 and EN 15804:2012+A1:2013	
Certification Body	Verifier (s)
	
(CERTIF – Associação para a Certificação)	(Marisa Almeida)

1.5. EPD Registration


Program Operator

(Plataforma para a Construção Sustentável)

1.6. PCR of reference

Name:	PCR: basic module for construction products and services
Issue date:	November 2020
Number of registration on the data base:	RCP-MB001
Version:	2.1
Identification and contact of the coordinator (s):	<p>PCR: basic module for construction products and services</p> <ul style="list-style-type: none"> • Marisa Almeida marisa@ctcv.pt • Luís Arroja arroja@ua.pt • José Silvestre jds@civil.ist.utl.pt
Identification and contact of the authors:	<p>PCR: basic module for construction products and services</p> <ul style="list-style-type: none"> • Marisa Almeida marisa@ctcv.pt • Luis Arroja arroja@ua.pt • José Silvestre jds@civil.ist.utl.pt • Fausto Freire • Cristina Rocha • Ana Paula Duarte • Ana Cláudia Dias • Helena Gervásio • Victor Ferreira • Ricardo Mateus • António Baio Dias
Composition of the Sectorial Panel:	-
Consultation period:	18/11/2015 – 18/01/2016
Valid until:	December 2022

1.7. Information concerning the product/product class

Identification of the product:	webertherm kal Produced in manufacturing centers of Aveiro and Carregado.																								
Illustration of the product:																									
Brief description of the product:	<p>Lime-based mortar for bonding and coating expanded cork agglomerate boards, in the webertherm systems (thermal insulation from the outside).</p> <p>Table1: Product composition</p> <table border="1" data-bbox="379 1256 951 1536"> <thead> <tr> <th>Component</th> <th>% (mass)</th> </tr> </thead> <tbody> <tr> <td>Hydraulic lime</td> <td>20</td> </tr> <tr> <td>Cement</td> <td>8</td> </tr> <tr> <td>Pozzolan</td> <td>5</td> </tr> <tr> <td>Inert material</td> <td>62</td> </tr> <tr> <td>Additives</td> <td>5</td> </tr> </tbody> </table>	Component	% (mass)	Hydraulic lime	20	Cement	8	Pozzolan	5	Inert material	62	Additives	5												
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Description of the products application:	Bonding and coating of insulating boards in expanded cork agglomerate, in a webertherm natura system.																														
Reference service life:	Unspecified.																														
Placing on the market / Rules of application in the market / Technical rules of the product:	<ul style="list-style-type: none"> Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonized conditions for the marketing of construction products (PRC). Regulation (EC) No 1272/2008 of 16 December 2008 on classification, labelling and packaging of substances and mixtures (CLP). Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH). EN 998-1:2016 - Specification for mortar for masonry - Part 1: Rendering and plastering mortars. 																														
Quality control:	According to the technical standards of the product: EN 998-1:2016																														
Special delivery conditions:	Not applicable																														
Components and substances to declare:	<p>The product does not contain substances that pose big threats to human health and the environment listed by the European Chemical Agency as Very High Concern substances (VHC), Persistent, Bio-accumulative and Toxic substances (PBT) and very Persistent and very Bio-accumulative substances (vPvB).</p> <p>To minimize chromium related allergic dermatitis arising from unprotected contact with cement or products containing cement the product contains a reducing agent to maintain soluble Chromium VI below 2 ppm until the expiry date, under recommended storage conditions.</p> <p>Table 3: Components</p> <table border="1"> <thead> <tr> <th>Substance</th> <th>CAS No.</th> <th>Hazardous for the environment</th> <th>Hazardous Sentences</th> <th>Quantity (%)</th> </tr> </thead> <tbody> <tr> <td>Hydraulic lime</td> <td>85117-09-5</td> <td>NO</td> <td>-</td> <td>10 - 20%</td> </tr> <tr> <td>Portland cement</td> <td>65997-15-1</td> <td>NO</td> <td>Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause respiratory irritation.</td> <td>5 - 10%</td> </tr> <tr> <td>Calcium carbonate</td> <td>471-34-1</td> <td>NO</td> <td>-</td> <td>5 - 10%</td> </tr> <tr> <td>Calcium dihydroxide</td> <td>1305-62-0</td> <td>NO</td> <td>Causes skin irritation. Causes serious eye damage. May cause respiratory irritation.</td> <td>2 - 5%</td> </tr> <tr> <td>Dicalcium silicate</td> <td>10034-77-2</td> <td>NO</td> <td>Causes skin irritation. Causes serious eye damage. May cause respiratory irritation.</td> <td>1 - 2%</td> </tr> </tbody> </table>	Substance	CAS No.	Hazardous for the environment	Hazardous Sentences	Quantity (%)	Hydraulic lime	85117-09-5	NO	-	10 - 20%	Portland cement	65997-15-1	NO	Causes skin irritation. Causes serious eye damage. May cause an allergic skin reaction. May cause respiratory irritation.	5 - 10%	Calcium carbonate	471-34-1	NO	-	5 - 10%	Calcium dihydroxide	1305-62-0	NO	Causes skin irritation. Causes serious eye damage. May cause respiratory irritation.	2 - 5%	Dicalcium silicate	10034-77-2	NO	Causes skin irritation. Causes serious eye damage. May cause respiratory irritation.	1 - 2%
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History of the LCA studies:	2015 – First LCA report																														

2. ENVIRONMENTAL PERFORMANCE OF THE PRODUCT

2.1. Calculation rules of the LCA

Declared unit:	1 kg of product in powder
Functional unit:	-
System boundaries:	EPD from cradle-to-gate
Criteria for the exclusion:	<p>The following processes were not considered in this study, since they fell on the cut-off criteria:</p> <ul style="list-style-type: none"> • The environmental loads associated with the construction of industrial infrastructures and the manufacture of machinery and equipment; • The environmental loads related to the infrastructures (production of vehicles, road maintenance) of the transport of pre-products; • The packaging of raw materials was considered negligible and with an impact below the limit of the exclusion criteria, since the raw materials with a higher percentage (in weight) in the products analyzed are bought in bulk; • Water consumption, wastewater production and waste in the administrative areas and laboratories; • Waste resulting from the change of filters, since its impact is less than 1%; • The transport of propane to the industrial units.
Assumption and limitations:	This EPD is intended to represent one (1) product that can be produced in two (2) manufacturing units and may have different colors. In this case, we have considered the product with the color beige.
Quality and other characteristics about the information used in the LCA:	The production data collected corresponds to the year 2019. During that year, the product webertherm kal was produced in the Aveiro plant. The generic data used belong to the Ecoinvent v3.6 databases and comply with the quality criteria (age, geographical and technological coverage, plausibility, etc.) of generic data.
Allocation rules:	In the industrial unit it also produced other powder products that have an equivalent manufacturing process. Considering this fact, it was assumed that the energy consumption, emissions and waste production are the same for each 1 kg of powder product produced. Energy consumption, waste materials and air emissions per mass of material produced were estimated based on annual inputs/outputs of each industrial unit and the amount of powders and pastes produced. It was calculated by dividing the annual input/output for the annual production of pastes and mortar powders.
Comparability of EPD for construction products:	The EPD of construction products and services cannot be comparable in case they are not produced according to EN 15804 and EN 15948 and according to the comparability conditions determined by ISO 14025.

2.1.1. Flow diagram of input and output of the processes

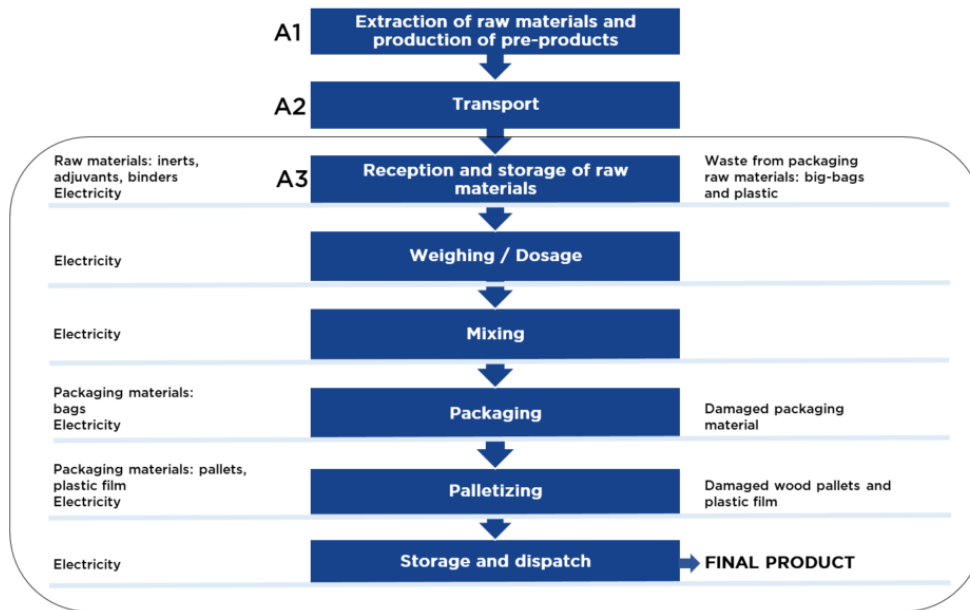


Figure 1: Life cycle stages of product webertherm kal (A1-A3).

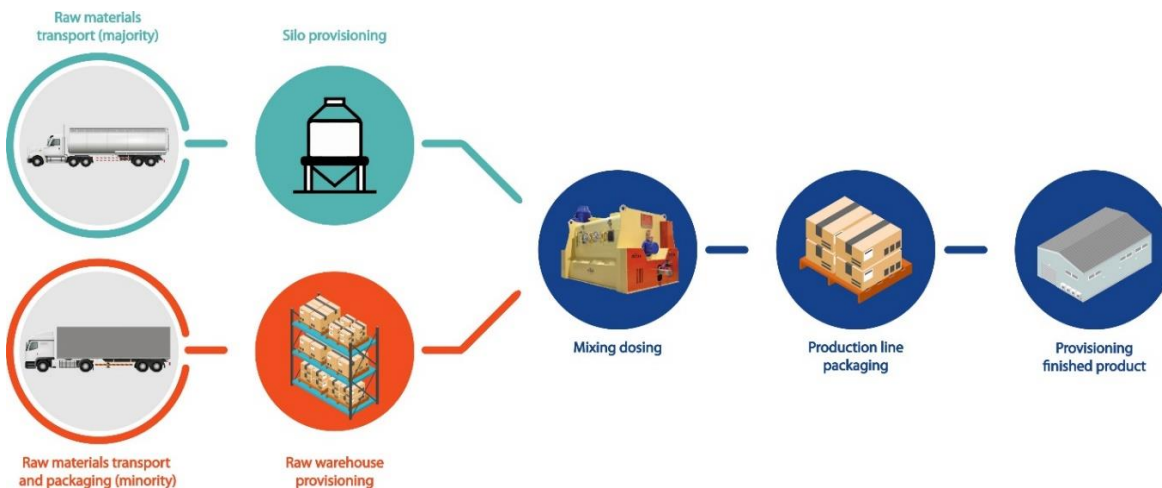


Figure 2: Production schema

Raw materials are transported in tankers, in plastic bags or big-bags. The bulk materials are stored in silos. The final powder product is obtained from the mixture of different components, based on a pre-established formulation. The dosing of raw materials can be carried out by a worm screw with frequency controller and volumetric dosing by means of a rotary valve. Weighing of the different components takes place within one of the three weighing hoppers. The dosed components are then discharged into the mixer via pneumatic valves for homogenization. The mixing time varies according to the specific composition of the product. After this, the product falls into the mixer hopper and is then discharged.

The last stage consists of packaging and palletizing the product. The powdered products are packed into printed Kraft paper bags (coated on the inside with polyethylene film) by means of electric machinery and then placed on a pallet. Finally, the pallets and bags are wrapped in plastic film and covered with a plastic sleeve.

2.1.2. Description of the system boundaries

(✓= included; ✗= module not declared)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY
Raw material supply	Transport	Manufacturing	Transport	Construction installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-constructions, demolition	Transport	Waste processing	Disposal	Re-use, recovery, recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
✓	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗	✗

2.2. Parameters describing environmental impacts

		Global warming potential; GWP	Depletion potential of the stratospheric ozone layer; ODP	Acidification potential of soil and water, AP	Eutrophication potential, EP	Formation potential of tropospheric ozone, POCP	Abiotic depletion potential for non-fossil resources	Abiotic depletion potential for fossil resources
		kg CO ₂ equiv.	kg CFC 11 equiv.	kg SO ₂ equiv.	kg (PO ₄) ³⁻ equiv.	kg C ₂ H ₄ equiv.	kg Sb equiv.	MJ, P.C.I.
Raw material supply	A1-A3	4,23E-01	2,72E-08	1,11E-03	1,55E-04	6,02E-05	1,22E-07	4,76E+00
Transport								
Manufacturing								
Total		4,23E-01	2,72E-08	1,11E-03	1,55E-04	6,02E-05	1,22E-07	4,76E+00

LEGEND:
 Product stage

NOTES: P.C.I. – Net calorific value
 Units expressed by declared units.

2.3. Parameters describing resource use

		Primary energy						Secondary materials and fuels, and use of water			
		EPR	RR	TRR	EPNR	RNR	TRNR	MS	CSR	CSNR	Net use of fresh water
		MJ, P.C.I.	MJ, P.C.I.	MJ, P.C.I.	MJ, P.C.I.	MJ, P.C.I.	MJ, P.C.I.	kg	MJ, P.C.I.	MJ, P.C.I.	m ³
Raw material supply	A1-A3	3,47E-01	0,00E+00	3,47E-01	5,52E+00	0,00E+00	5,52E+00	0,00E+00	0,00E+00	0,00E+00	3,56E-03
Transport											
Manufacturing											
Total		3,47E-01	0,00E+00	3,47E-01	5,52E+00	0,00E+00	5,52E+00	0,00E+00	0,00E+00	0,00E+00	3,56E-03

LEGEND:

Product stage

EPR = use of renewable primary energy excluding renewable primary energy resources used as raw materials; **RR** = use of renewable primary energy resources used as raw materials; **TRR** = total use of renewable primary energy resources (EPR + RR); **EPNR** = use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; **RNR** = use of non-renewable primary energy resources used as raw materials; **TRNR** = total use of non-renewable primary energy resources (EPNR + RNR); **MS** = use of secondary material; **CSR** = use of renewable secondary fuels; **CSNR** = use of non-renewable secondary fuels.

NOTES: P.C.I. – Net calorific value
 Units expressed by declared units.

2.4. Other environmental information describing different waste categories

		Hazardous waste disposed kg	Non-hazardous waste disposed kg	Radioactive waste disposed kg
Raw material supply Transport Manufacturing	A1-A3	3,16E-06	1,85E-02	1,56E-05
Total		3,16E-06	1,85E-02	1,56E-05

LEGEND:
 Product stage

NOTES: Units expressed by declared unit.

2.5. Other environmental information describing output flows

Parameters	Units*	Results
Components for re-use	kg	0,00E+00
Materials for recycling	kg	5,41E-03
Radioactive waste disposed	kg	1,56E-05
Materials for energy recovery	kg	0,00E+00
Exported energy	MJ per energy carrier	0,00E+00

* expressed by declared unit

3. SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

This EPD evaluates only the production stage of the product, integrating steps A1 to A3. Thus, the following scenarios of the construction step (modules A4 and A5), step of use (B1 to B7) and end of life step (C1 to C4), are not applicable.

Saint-Gobain is committed to complying with the following principles within the scope of its environment, health and safety (EHS - Environment, Health & Safety) program: Zero accidents at work; Zero occupational diseases; Zero environmental accidents and minimal impact from our activities.

We achieve this guided by the following principles: Respect for the legislation in force, as well as for the Saint-Gobain standards; Exemplary in all our processes, products and services, during the life cycle; Continuous prevention and reduction of all risks to our workers, temporary workers, contractors, visitors and customers and to our environment; Permanent, responsible and open dialogue between stakeholders (employees, public authorities and institutions, local community, customers, suppliers, etc.).

And with the implementation of actions such as: Weekly safety, health and environment meetings with the entire operations team; Incorporation of raw materials from recycling, both internal and external; Selective separation of generated waste and preferential forwarding to recovery destinations; Monthly management meetings to evaluate performance and improve processes; Systematic monitoring of our customers to provide them with the best proposals, as well as the training of applicators in our academy; Development of digital tools that, internally, facilitate the flow of information and, externally, allow our customers and partners to obtain easy and dedicated information for decision-making; Program of services aimed at well-being: gymnastics at work, physiotherapy at work, occupational psychology, nutrition workshops, supply of fresh fruit, etc.

REFERENCES

- ✓ Ecoinvent database v3.6
- ✓ General Instructions - DAPHabitat System, Version 1.1, Edition 2015 (www.daphabitat.pt);
- ✓ **PCR – basic module for construction products and services.** DAPHabitat System. Version 2.1, November 2020 (www.daphabitat.pt);
- ✓ **ISO 14025:2009** Environmental declarations and labels – Type III environmental declarations – Principles and procedures;
- ✓ **EN 15804:2012+A1:2015** Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products;
- ✓ **EN 15942:2011** Sustainability of construction works – Environmental product declarations – Communication format business-to-business